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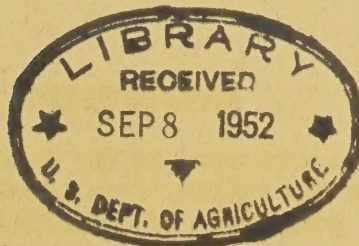


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MINNESOTA AGRICULTURAL EXPERIMENT STATION

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CHANGES IN FARMING IN THE LAKE STATES
CUT-OVER REGION DURING THE WAR

As Represented By
Carlton County, Minnesota.

By
Hugh A. Johnson
Agricultural Economist



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PREFACE

Peacetime farming in the cut-over areas of Minnesota, Wisconsin, and Michigan is described in the mimeographed report "Farming in the Lake States Cut-Over Region as Represented by Carlton County, Minnesota" published during May 1945. The analysis, made by Warren R. Bailey of the Bureau of Agricultural Economics, from data obtained in 1940, considers many of the possibilities, limitations, and problems of farming and farm life in these large areas. The picture developed was not wholly favorable nor wholly unfavorable.

Farming was profitable during World War II. Markets would take almost any product that the farmer had to sell at a good price. The weather favored high production. It was a good period for farm income in spite of the real worries that farmers had about hard-to-get supplies, labor, and machinery.

But did all groups of farmers fare well during this period of general wartime prosperity? What about the operators of small and often root-and-rock-bound farms of the cut-over region of the Lake States? Did they, too, have larger incomes and have more money available for paying off debts, enlarging their farms, as well as living better and accumulating a reserve for more difficult days? This report gives information that will help to answer some of these questions. It is prepared as a supplement to the study of farming in the cut-over region of the Lake States under peacetime conditions.

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INTRODUCTION

Much information about Carlton County in Minnesota, the kind of farming carried on, and problems that confront farm families living there was obtained in 1940 from visits with 129 families in the county. Observations and findings are given in the earlier report on farming in the Lake States cut-over region (see preface). Five years later all of the original 129 families, except 2, that remained were revisited to find how they had fared during the war and the changes they had made in the organization and operation of their farms. New families living on places visited in 1940 were interviewed to see whether they were operating any differently than the previous occupants.

In 1945 100 of the original 129 families were living on the same places as 5 years earlier. Of the other 29 families, 6 had moved from the region, 7 had sold out and retired, 5 had moved to other localities following the deaths of the operators, 4 had sold out and moved to cities where some of the family members had obtained work, 4 still owned their places but were temporarily employed in a city, and 1 tract was vacant as the owner was in the Armed Forces. Information could not be obtained from the remaining two families.

A slight reduction in the number of farms was registered between 1940 and 1945 for Carlton County as a whole. The Federal Census reported 2,510 for the earlier year, but 2,469 for 1945. However, the acreage in farms and acreage used for crops increased. Acreage in farms expanded from 222,000 to 238,680 acres. Acreage used for crops in 1945 exceeded the 67,000 acres reported in 1940 by 7,000 acres.

FARM ORGANIZATION AND OPERATION

Farms of the 100 families that did not move between 1940 and 1945 were classified for each of the 2 years by the same method. They were first grouped according to size of business measured in terms of man-days of productive work 1/, and were subsorted according to acres of cropland 2/. The first classification gives a basis for separating farms from rural residences. The second provides a common measure of size of farm. Farms that furnished 250 or more man-days of work were classified as full-time farms, those with 75-249 man-days as part-time farms, and those with less than 75 man-days as rural residences.

During the 5-year period 1 unit that had been a full-time farm in 1940 and 8 units that had been part-time farms at that time changed to the status of rural residences (table 1).

Table 1.- Classification of 100 survey farms, by kind and size, Carlton County, Minnesota, 1940 and 1945

Size of farm	Kind of farm							
	Full-time 1/		Part-time 2/		Residence 3/		Total	
	1940	1945	1940	1945	1940	1945	1940	1945
Crop acres	No.	No.	No.	No.	No.	No.	No.	No.
Under 20	1	--	9	8	8	9	18	17
20-39	18	9	23	15	4	10	45	34
40 and over	33	42	4	5	--	2	37	49
	52	51	36	28	12	21	100	100

1/ Farm business furnishing 250 or more man-days of work.

2/ Farm business furnishing 75 to 249 man-days of work.

3/ Farm business furnishing less than 75 man-days of work.

1/ The usual 10-hour man work unit.

2/ The amount of cropland roughly determines the quantity of feed produced, therefore the size of dairy herd. Because of its importance and as farms vary widely in percentage of land in crops, cropland is a better measure of size than total land in farms.

Land Use

Full-time farmers expanded the size of their units sufficiently during the 5 years to account for a 30 percent increase in the acreage of their 51 farms. Although 5 part-time farmers reduced the size of their units, 12 others added to their acreage so there was a net increase of 26 percent in the total acreage of the 28 farms classified as part-time in 1945. Over the period only one rural resident added acreage to his holding, 11 continued with the same acreage, and 9 reduced their units. The total acreage held by all rural residents was 27 percent smaller in 1945 than in 1940.

Average size of the 1945 farms of the 100 families was 18 acres larger than 5 years earlier (table 2). About 45 percent of this expansion in size was represented by an increase in cropland.

Table 2.- Average size of farms of 100 families and principal land use, 1940 and 1945, Carlton County, Minnesota 1/

Land use	:	1940	:	1945
	:	Acres	:	Acres
Tame hay	:	26.9	:	38.5
Small grain	:	6.2	:	5.3
Corn	:	.7	:	.2
Potatoes	:	2.3	:	.9
Cabbage and rutabagas	:	.6	:	.4
Rotation pasture	:	.6	:	.2
Wild hay <u>2/</u>	:	1.0	:	1.7
Idle cropland	:	---	:	---
Other cropland	:	.3	:	.1
Total cropland	:	38.6	:	47.3
Woods, pasture, etc.	:	64.3	:	73.9
Total land	:	102.9	:	121.2

1/ Owned or rented land.

2/ Wild hay includes marsh grass and some improved wet areas which provide roughage as a regular part of the farm organization. This is not typical prairie grass found further west.

Cropland accounted for about the same relative share of the land of the average farm in both years--38 percent in 1940 and 39 percent in 1945. However, the relative importance of cropland decreased on the small and medium-sized units and increased on the large ones (table 3). Thus, families with less than 20 acres of cropland in 1945 reduced their tillable acreage by nearly 50 percent in 5 years, and their total land in farms by 30 percent. Those on medium-sized units increased their cropland (mostly hay land) by 15 percent and their total land by nearly 60 percent. Cropland acreage on large farms expanded 34 percent while total acreage for the same units increased 27 percent.

*Table 3.- Land utilization on 100 farms, by size, Carlton County, Minnesota, 1940 and 1945

Land use	Size of farms 1/							
	Average		Small		Medium		Large	
	all farms							
	1940	1945	1940	1945	1940	1945	1940	1945
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Hay land	26.9	38.5	15.4	8.6	19.6	26.6	36.1	56.7
Other cropland	11.7	8.8	5.2	2.3	5.9	2.8	17.9	15.7
Total	38.6	47.3	20.6	10.9	25.5	29.4	54.0	72.4
All other land	64.3	73.9	55.7	43.2	46.4	84.3	79.6	97.7
Total land	102.9	121.2	76.3	54.1	71.9	113.7	133.6	170.1

1/ Small farms are those with less than 20 crop acres, medium those with 20 to 39 crop acres, and large farms those with 40 or more crop acres.

Cropping System

Cropping systems are modified sometimes because of changes in livestock enterprises. Dairying was expanded in Carlton County during the war as a consequence of the tremendous need for milk and dairy products. Income from dairying was good, and it encouraged heavier feeding of more and more cows. With this greater emphasis on dairying, acreages of hay increased from 70 percent of crop acreage in 1940 to 81 percent in 1945 on the land operated by the 100 families. Preliminary census estimates indicate that alfalfa acreage in Carlton County decreased 25 percent, from 3,180 to 2,400 acres, between 1939 and 1944. At the same time clover and timothy rose 48 percent, from 34,130 to 50,685 acres.

Average acreages of small grains decreased from 6.2 acres in 1940 to 5.3 in 1945 on the 100 farms visited. Oats were the principal grain, with smaller acreages of barley, rye, flax, and wheat. Corn never has been an important crop; a few farmers grow small acreages for fodder.

Blight and unfavorable weather have so reduced yields from potatoes in recent years that many families in the county have difficulty in growing and keeping enough for their own use.

In the eastern part of the county the soils are adapted to cabbage and rutabagas. Growing cabbage for market is the main source of income for several of the families.

Open pasture changed little in the 5 years. It increased 1 acre per farm from 17 to 18 acres. The brush and woodland pastures were variously listed in 1940 and 1945 so that changes in average figures mean little. Much of the "brush pasture" might more accurately be classified as "poor woods" for it

produces little forage. Woodlots generally are in poor condition and many farmers allow their livestock to roam over them gathering whatever forage they can.

Land Clearing

Eleven of the 100 operators cleared a total of 27.5 acres between 1935 and 1940, or an average of 2.5 acres per farm. Between 1940 and 1945, 34 operators cleared 121.5 acres or an average of 3.6 acres per farm. Only 6 operators cleared land during both periods.

Lack of adequate cropland has been one of the major handicaps in the cut-over region. In Carlton County, many tracts of 80 to 120 acres lack sufficient well-drained, stone-free land to develop an adequate unit. On others, slowly decaying pine stumps and tenacious birch and aspen sprouts have made land clearing both slow and expensive. The common procedure is to brush off a small acreage, keep it sprouted for 2 or 3 years, then remove the stumps and break the ground. In the meantime, the ground makes fair pasture if it is seeded down.

Several bulldozer operators will now root out the pine stumps and larger stones for about \$5 per hour. Under good conditions they can clear nearly an acre an hour, but considerable additional work must be done before the land is ready for cultivation.

Livestock System

Average numbers of milks cows on farms in Minnesota increased 2 percent between 1940 and 1945 and total milk produced increased 2.6 percent.^{3/} Production per cow increased only 30 pounds during the period. Minnesota's total milk production in 1944 was only 3 percent above its 5-year (1937-41) prewar average.

Cows and heifers 2 years old and over kept for milk in Carlton County increased 12.4 percent from January 1, 1940, to January 1, 1945, and milk production increased 13.6 percent.^{4/} Preliminary census estimates indicate that average production per cow in the county climbed only 53 pounds between 1939 and 1944 (from 4,954 to 5,007 pounds). Creamery managers over the county indicate that they handled about 15 percent more butterfat in 1944 than in 1940. During the first 8 months of 1945 their butterfat receipts were 1.5 percent above the similar period of 1944. Most of the increased milk production in the county between 1940 and 1944 seems to have come from milking more rather than better cows.

Numbers of cows milked throughout the county were somewhat lower in 1945. The continued increase in receipts of butterfat in 1945 can probably be partially accounted for through the heavier feeding encouraged by the Government feed payments. Liquidation of low producers and good pasture conditions, however, were factors of some importance.

^{3/} Milk Cows and Milk Production on Farms. Bureau of Agricultural Economics, U. S. Department of Agriculture.

^{4/} Minnesota State Farm Census. Minn. State Dept. of Agriculture, Dairy and Food.

Wartime demands for milk and milk products changed the markets for dairy products coming from farms in the county. The 1940 Census shows that 33 percent of the milk produced in this county in 1939 was sold as fluid, the rest being sold in the form of cream or butter. In 1944, 81 percent of the milk was sold as whole milk.

Duluth-Superior was the major market for fluid milk from Carlton County before the war, but was available only to farmers in the northeastern corner of the county. During the war several creameries scattered over the county converted to cheese production. Some others became receiving stations for fluid milk which was to be transferred to larger plants for manufacture.

Dairy herds in this region have been well-known for high-quality cows, and their production has been above the average for the State. Most herds are bred for winter freshening. Milk production is normally highest during June, with May and July ranking next. Farmers normally grow their own hay, but buy most of their concentrate feed.

Herd improvement is a regular part of the program among the larger and the better farmers. Some keep their own bulls, others own bulls cooperatively or belong to artificial breeding associations.^{5/} Farmers with small herds usually depend upon the herd sires of neighbors for breeding service for which they may or may not have to pay.

The 100 families visited had an average of 8 cows in 1940 and 9 in 1945 (table 4). Farmers with less than 20 crop acres reduced their numbers of cows by half; farmers with from 20 to 60 crop acres maintained their average number; and farmers with 60 or more crop acres increased their number an average of 5 per farm. Other cattle per farm roughly followed the same trends, although the average number for all farms was 6 in both 1940 and 1945.

Because the region does not normally produce enough eggs to meet local demand, poultry production became important a few years ago. It failed to last, however, since farmers found that imported feed was too expensive and winter weather was too cold for economical egg production.

Most families maintain an average of less than 50 hens to produce eggs and meat for their own use only. In 1940, 39 percent of the 100 families had no hens and 44 percent kept none in 1945. Others in 1945 bought unsexed chicks and canned the cockerels and cull hens for meat. If other kinds of meat had been relatively more available in 1945, it is doubtful that many of these families would have kept poultry.

Hog production is another enterprise that farmers have found to be unprofitable here. Less than half as many hogs were produced in 1945 as in 1940 and these were predominantly for home butchering. Skim milk was no longer

^{5/} It is estimated, by the University of Minnesota Extension Dairy Specialist, that the Barnum Artificial Breeding Association bred about 1,200 cows in 1945. This is the only association of its kind in the county at present.

Table 4.- Average numbers of various productive livestock per farm,
by size of farm, 100 farms, Carlton County, Minnesota,
1940 and 1945

Size of farm	: Number : of farms : in : group	Dairy cows		Other cattle		Hogs ^{1/}		Hens	
		1940	1945	1940	1945	1940	1945	1940	1945
Crop acres	Number	Number	Number	Number	Number	Number	Number	Number	Number
Under 10	8	5	2	5	1	.9	.2	22	15
10-19	9	5	3	3	3	1.0	1.3	40	36
20-29	17	5	5	3	3	.8	.2	31	38
30-39	17	6	6	4	4	1.1	.7	17	11
40-49	10	11	11	6	6	1.8	.6	59	59
50-59	10	11	11	10	9	2.4	1.8	45	61
60-69	3	12	19	11	10	^{1/} 10.5	1.3	110	154
70-79	9	9	14	6	11	2.0	.7	40	35
80-89	8	12	17	12	10	^{1/} 8.1	2.2	90	90
90-99	2	14	17	4	12	1.0	2.0	5	---
100 and over..	7	17	20	9	13	3.4	1.5	21	63
Average	100	8	9	6	6	2.3	1.0	40	44

^{1/} Three farmers had several sows for breeding purposes in 1940; this affects the average figures. They had closed out the hog enterprise by 1945.

available because they sell whole milk and purchased grain and protein feeds were expensive. If meat had not been scarce in the stores, the farmers would have grown fewer hogs for home butchering.

Few farmers keep sheep as they are preyed upon by dogs, wolves, and bear. Moreover, until the war, the prices of wool and lamb were low. Of the few flocks kept most are used to browse sprouts on land newly cleared for breaking.

Power and Machinery

Farmers in this county need less power and machinery than farmers in central and southern Minnesota, but individual inventories are usually adequate for the cropping program being followed.

Horses are slowly disappearing as the older ones die and are not replaced. The larger farms are depending more upon tractors and trucks, while the small farms either exchange work stock or hire the work done. Many farmers maintain a team even though they use tractors for most of their farm work. The average number of horses per farm decreased from 1.7 in 1940 to 1.3 in 1945.

Because they were relatively inexpensive, home-made tractors were rather popular on all sizes of farms in 1940. In fact, there were as many home-made as factory-built tractors on these farms (table 5). By 1945, it was evident that the home-made tractors were best adapted to the smaller acreages. Farmers having more than 40 acres of cropland, who had bought tractors had bought factory-built tractors almost exclusively. Many of the older tractors were bought second-hand from farm-implement dealers who shipped them in from other areas. Several relatively new, small, general-purpose tractors were in operation on farms in the fall of 1945. Most places with less than 30 acres of cropland operate without tractor power. Nearly 25 percent of the farmers operating more than 30 acres of cropland had bought tractors since 1940.

Table 5.- Number of farms in survey without tractors, farms with factory-built tractors, and farms with home-made tractors, by crop acres per farm

Size of farm	All farms	Farms without tractors			Farms with tractors 1/			
		1940	1945	1940	Factory-built		Home-made	
					1940	1945	1940	1945
Crop acres	Number	Number	Number	Number	Number	Number	Number	Number
Under 10	8	6	6	1	---	1	2	1
10-19	9	7	7	---	1	2	2	2
20-29	17	14	14	1	3	3	6	1
30-39	17	13	8	3	6	3	1	1
40-49	10	5	3	2	5	1	1	---
50-59	10	8	5	1	2	1	---	1
60-69	3	2	1	---	7	2	---	---
70-79	9	3	2	5	6	---	---	---
80-89	8	3	2	---	1	1	---	---
90-99	2	1	1	---	7	4	2	---
100 and over	7	2	---	3	39	20	16	---
Total.....	100	64	49	20				

1/ Some farms had two tractors, therefore totals equal more than 100 cases.

Only operators of the larger farms can afford to maintain a fairly complete line of equipment. Where the average farmer grows only 5 acres of grain he cannot afford a binder; or one growing 2 acres of potatoes cannot afford potato planters, sprayers, or diggers. They either borrow from neighbors or use more tedious, but cheaper, hand methods.

Individual families get the use of some machines through partner ownership, renting, or borrowing. Potato machinery is often owned in partnership by three to six neighbors. Occasionally grain drills and grain binders are owned in partnership but more frequently a farmer owns one alone and rents to his neighbors at a standard rate per acre. Sometimes the use of one machine is exchanged for the use of another and no charge is made.

Some farmers with little or no power and machinery hire others to do some machine work. The farmer doing custom work furnishes the power and the machine, operates the rig himself, and charges a standard rate per acre or per hour. Custom work is most common in the case of plowing, drilling, and binding grain. A few operators do little farming and make most of their living from custom work which they perform quickly and efficiently. Operation of bulldozers and tractor-drawn breaking plows is a current example.

At first thought, one would be likely to say that it is impossible to farm without plows, wagons, and mowers. Yet, 20 percent of the families interviewed were getting along without plows or mowers, and more than 10 percent had no wagon (table 6). Most of these operated small acreages and either borrowed tools or hired the work done. Many fields are plowed only at long intervals when they will no longer produce an acceptable crop of hay.

Disk and spring-tooth harrows are popular, while spike harrows are declining in number. Cultivators and potato-working tools have declined, since fewer families grow row crops.

Farm Buildings and Equipment

Farm buildings in the county are often larger and newer than is common in the rest of the cut-over region. Many were built with part of generous Government indemnities resulting from the Cloquet fire of 1918. It is doubtful that many families could have ever afforded these buildings by depending upon the productivity of their farms.

Buildings and their equipment are generally adequate to meet the needs of the farm, although some barns cannot feasibly be repaired or remodeled to meet sanitary requirements for quality milk production. A few families, such as the aged and the rural residents, have far more barn space than they have use for.

Frame barns are common, although some log buildings and some combinations are still in use. Most dairy barns have wood or concrete floors, and adequate stanchions and mangers. The better dairymen pipe water into the dairy barns. A few milking machines were installed during the war where herds were enlarged and help was scarce.

Old log or frame hay barns are still common on many farms. Some are on hay meadows and others are part of the farmstead. Combination poultry houses and machine sheds are found on some farms. On Finnish farms there is often a bathhouse, although these have sometimes been converted to granaries, garages, chicken houses, or other uses by families who do not care for the famous steam baths.

Table 6.- Numbers of specified machines on farms, by size of farm, 100 farms, Carlton County, Minnesota, 1940 and 1945

Size of farm	Tillage machinery												Cultivator
	No machinery on place		Plow		Harrows								
					Disk		Spike tooth		Spring tooth				
	farms	1940	1945	1940	1945	1940	1945	1940	1945	1940		1945	
Crop acres	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Under 10	8	1	4	5	3	3	--	3	1	5	2	5	1
10-19	9	1	2	6	8	3	6	3	2	5	7	6	4
20-29	17	2	2	12	10	6	8	1	2	7	10	9	6
30-39	17			15	13	7	12	2	--	15	14	13	10
40-49	10			8	9	4	8	3	1	10	10	9	8
50-59	10			10	10	6	8	4	5	7	8	8	7
60-69	3			3	3	2	3	--	1	3	3	3	3
70-79	9			9	8	5	8	1	1	8	9	9	8
80-89	8			7	5	3	5	2	2	8	7	7	7
90-99	2			2	2	2	2	1	1	2	2	2	1
100 and over	7			8	8	5	7	2	3	6	7	6	5
Total	100	4	8	85	79	46	67	22	19	76	79	77	60

Continued -

Table 6.-- Numbers of specified machines on farms, by size of farm, 100 farms,
 Carlton County, Minnesota, 1940 and 1945 - Continued

Size of farm	Hay tools			Potato tools			Grains tools			
	All farms	Wagon	Mower	Rake	Planter	Sprayer	Digger	Drill	Binder	
	1940	1945	1940	1945	1940	1945	1940	1945	1940	1945
Crop acres	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Under 10	8	6	6	3	2	1	1	1	1	--
10-19	9	8	8	6	7	--	--	--	--	--
20-29	17	14	11	12	9	1	1	1	1	--
30-39	17	15	14	13	12	4	3	3	3	3
40-49	10	10	10	11	5	2	1	4	6	7
50-59	10	10	9	9	9	7	2	3	2	2
60-69	3	3	3	3	4	1	1	1	1	1
70-79	9	9	9	8	10	3	6	5	5	5
80-89	8	8	9	8	11	3	5	2	3	5
90-99	2	2	2	2	2	1	1	1	1	1
100 and over	7	7	7	5	10	5	4	6	4	7
Total	100	92	92	83	81	33	21	27	27	31

FARM FAMILY INCOME

Income from Farming

Seventy-five percent of the average 1940 cash farm income received by the 100 families came from the dairy herd (table 7 and fig. 1). By 1945, through higher prices for milk and through sale of whole milk where formerly only cream had been sold, dairying accounted for 86 percent of the average cash farm income. Farmers in the county were even more dependent upon dairying for their incomes during the war than they were before.

Cattle sold were mainly cull dairy cows, but some breeding cattle and veal calves were included. A relatively high price for milk and the comparatively low prices for veal during the war caused many farmers to either kill their calves at birth or give them away.

Other livestock, mostly hogs and poultry, were relatively unimportant sources of income in the county.

Potatoes, cabbage, and sale of hay stumpage were the main sources of receipts from crops. Forest products, AAA, and miscellaneous income items account for the small remainder.

Income from the dairy was the major source of farm income on small farms between 1940 and 1945, and, since this income declined and costs rose, net returns from farming also declined (table 8). The rise in demand for and prices of whole milk and value of livestock largely accounts for the rise in gross receipts on middle-sized and large farms.

Table 7.- Cash farm receipts on 100 Carlton County farms, 1940 and 1945

Source of receipt	Income		Percentage of total	
	1940	1945	1940	1945
	Dollars	Dollars	Percent	Percent
Milk, cream, butterfat	622	1,535	60.8	68.0
Milk subsidy	---	190	---	8.4
Cattle and calves	144	224	14.1	9.9
Hogs	12	13	1.2	.6
Poultry and eggs	53	102	5.2	4.5
Sheep and wool	4	6	.4	.2
Sheep and wool	67	25	6.6	1.1
Potatoes	77	139	7.5	6.2
Other crops	1	1	.1	---
Garden produce	7	6	.7	.3
Forest products	30	13	2.9	.6
AAA payments	5	4	.5	.2
Other	1,022	2,258	100.0	100.0
Total				

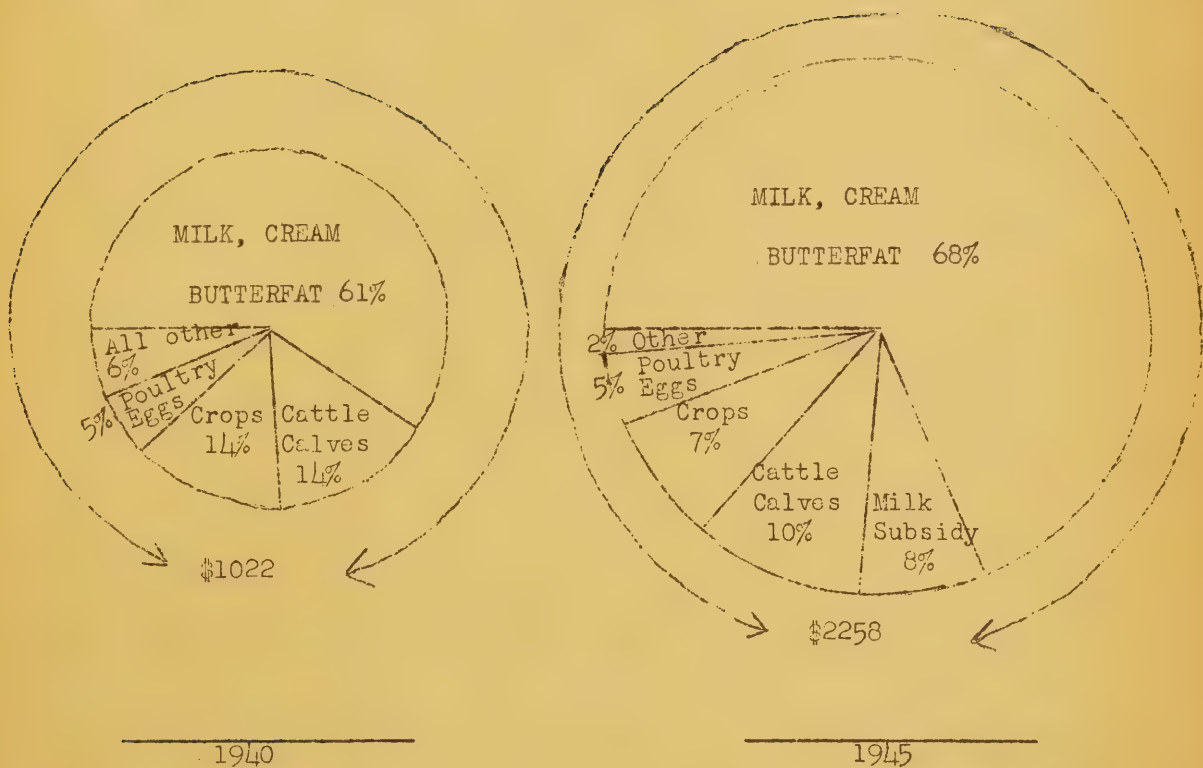


Figure 1.- Cash farm income and its sources on 100 farms, Carlton County, Minnesota, 1940 and 1945

Table 8.- Comparison of average cash farm receipts and expenses, by size of farm, 100 Carlton County farms, 1940 and 1945

Item	Size of farm							
	All farms		Less than 20		20 to 39		40 and over	
			crop acres		crop acres		crop acres	
	1940	1945	1940	1945	1940	1945	1940	1945
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
Cash Income								
Dairy products ^{1/}	622	1,725	316	282	325	957	935	2,759
Cattle and calves	144	224	83	77	72	146	213	330
Hogs	12	13	---	16	3	2	23	21
Sheep and wool	4	6	2	---	---	---	8	12
Poultry and eggs	53	102	64	62	16	59	75	144
Potatoes	67	25	10	---	36	20	108	37
Other crops	77	139	5	9	5	30	152	259
Forest products	7	6	14	---	---	1	8	11
AAA payments	30	13	16	5	17	5	45	22
All other	6	5	---	---	7	10	7	3
Total	1,022	2,258	510	451	481	1,230	1,574	3,598
Cash Expenses								
Seed, fertilizer, spray, dust:	24	36	8	7	14	15	37	63
Threshing and machinery hire:	16	19	8	1	13	11	19	29
Feed purchased.....	146	418	99	123	96	205	197	667
Livestock purchased	17	47	4	20	3	19	30	76
Livestock expense	9	16	5	6	6	10	13	23
Machinery & building repairs:	26	103	10	8	13	42	40	179
Hired labor	39	62	22	5	13	56	64	86
Auto, truck, tractor ^{2/}	90	147	44	24	33	95	147	227
Taxes, rent, interest, insurance:	92	102	65	51	61	57	125	150
All other	31	75	21	27	16	35	42	119
Total	490	1,025	286	272	268	545	714	1,619
Net cash farm income	532	1,233	224	179	213	685	860	1,979

^{1/} Includes milk subsidy averaging \$190 for all cases, \$28 for small farms, \$113 for medium size, and \$300 for large farms.

^{2/} Includes milk and cream transport.

Farm Expenses

Purchased feed was the largest single item of farm expense on most farms in both 1940 and 1945. Both average quantity and value per ton increased during the period. Feed bills tripled and several farmers remarked that the feed-subsidy check all went to buy feed they otherwise could not have bought.

Most other farm expenses increased during the war, but not so much as feed. Cost of milk hauling increased from an average of \$18 to \$71 per farm, but this

was caused by a change from cream to whole milk as well as an actual increase in volume handled. Fixed expenses--including taxes, insurance, interest, and rent--rose from \$92 to \$102. Hired-labor cost changed from \$39 to \$62. There were fewer men hired, but wages were higher. Auto, truck, and tractor expense, other than for milk hauling, rose only \$4 per farm from \$72 to \$76. Much of this small advance was caused by the increasing cost of upkeep and repairs, since actual use of autos and trucks was greatly reduced during the war.

Machinery and building repairs increased appreciably on farms of more than 20 cropland acres. Several farmers were making extensive repairs on buildings and others were replacing fences. Materials were high priced and scarce.

Net Cash Farm Income

Net cash farm income doubled between 1940 and 1945 for the average farm having 20 or more crop acres, but the resulting \$685 for middle-sized farms and \$1,979 for large farms was still a low return for labor, depreciation, and use of capital, when it is judged by standards of more prosperous agricultural areas. The return of \$179 to small farms means little, for the operators of these units usually had other income or did not work because of physical infirmities.

These incomes are somewhat discouraging when the causes for their increase are examined. Dairying is the major enterprise, and the change from sale of cream to fluid milk accounted for most of the increased income. Further examination of price relationships indicates that the index of Minnesota farm prices 6/(1935-39 base) climbed from an average of 89 for 1940 to 175 for 1945, or 97 percent. Net cash farm incomes on medium-sized farms in the county rose 222 percent and on large farms 130 percent during the 5-year period. Thus, while some of the improvement in earnings was derived from better farming methods and larger and more adequate size of farm business, most of it resulted from the unusually high prices received for dairy products. These good prices were obtained primarily as a result of the opportunity to market more whole milk and less cream and butter. Return to lower prices for dairy products or the loss of markets for large volumes of whole milk would necessarily reduce farm incomes in the region.

Farm Products Used in Homes

In many communities, home-grown produce accounts for a large part of the value of family living obtained from the farm during the year. Home-grown produce may contribute more to the well-being of farm families than its value would indicate. This would be particularly true when the produce, if marketed, would bring low prices, but the items needed to replace it, if it were not available on the farm, were high priced.

6/ This index expresses the average of the increases and decreases in farm-product prices weighted according to their relative importance.

Source; Farm Business Notes. Agr. Ext. Service, Univ. of Minn.

In 1940 the average family utilized food and fuel worth \$177 (table 9). This was a third as much as the average net cash income from farming. In 1945, even with prices averaging double those in 1940 on many items 7/, the average value of home-produced food and fuel increased only \$41 over 1940. Families were using nearly 20 percent less milk, less cream and butter, less eggs, less veal and pork, and less vegetables, potatoes, and wood for fuel. They used more home-grown poultry and beef in 1945 than previously, because meat had been hard to buy. Consumption of home-grown pork would have been lower than it was, if meat had been found on the local markets. Fruits and vegetables amounted to less than usual in 1945 because there were no wild fruits and adverse weather spoiled most gardens. Many families were buying coal rather than cutting and using the low-grade wood that was available.

Two families had trapped a total of \$456 worth of furs in 1940, and three families had trapped a total of \$330 worth in 1945.

There was a 15-percent decline in the number of persons in the 100 households during the 5-year period. This decrease occurred in nearly all groups, but was most evident on the larger farms. Little or no relationship is found between the size of farm and the value of home-produced food and fuel, but there is a close relationship between numbers in the household and the value of home-used products.

7/ Prices allowed for home-used produce in 1940 Carlton Co., Minn. study:

<u>Product</u>	<u>Unit</u>	<u>1940 price</u> <u>Cents</u>	<u>1945 price</u> <u>Cents</u>
Milk	Qt.	3-1/2	7
Cream	Pt.	5	20
Butter	Lb.	30	40
Eggs	Doz.	18	49
Poultry	Lb.	20	28
Hogs	Lb.	10	14
Cattle	Lb.	12	16
Calves	Lb.	12	18
Honey	Lb.		15
Potatoes	Bu.	50	135
Fruit and vegetables	Qt.	15	30
		<u>Dollars</u>	<u>Dollars</u>
Fuel.....	Cord	2.50	8.00

Table 9.- Value of home-produced food and fuel by size of farm,
100 farms, Carlton County, Minnesota, 1940 and 1945

Item	Size of farm 1/							
	All farms		Small		Medium		Large	
	1940	1945	1940	1945	1940	1945	1940	1945
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
Milk	43	75	31	54	31	62	56	91
Cream	8	5	8	7	5	3	11	5
Butter	9	7	4	11	8	7	10	5
Eggs	13	25	10	13	10	17	15	35
Poultry	7	14	4	9	4	8	11	19
Cattle	8	15	5	6	5	10	11	21
Calves	5	7	3	2	4	5	5	10
Hogs	22	13	17	13	16	8	28	17
Potatoes	12	16	12	9	9	15	15	20
Vegetables and fruits ..	18	16	17	13	14	17	22	18
Fuel	32	25	34	20	22	19	38	31
Total	177	218	145	157	128	171	222	272

1/ Size groups are the same as used in table 3.

Each family apparently used all they needed of the commodities ordinarily produced for sale, plus some additional amounts of scarce items such as pork or eggs. The needs varied, however, with the make-up of the family group. Elderly couples were likely to produce much less of their food than families that included growing children.

There is little room for other comparisons of these items for the group between 1940 and 1945, because conditions have changed. Age distribution, employment, prices, etc., are different. In the case of butter, for example, a farm family could sell their milk for the price, plus the subsidy, and get more for it than butter would cost at the store. Under such conditions there is no incentive to churn butter at home.

Income from Woodlots

Cash receipts from the sale of forest products and the value of wood used for fuel on the farm (tables 8 and 9) do not add up to an important contribution of woodlots to farm family living in Carlton County. An average annual contribution to farm-family income of only from \$30 to \$40 is not much in a region that is naturally adapted to forests. The explanation rests partly upon the fact that because the growth of timber is so slow few farmers look to woodlots as important sources of year-to-year income.

Information concerning the physical condition of woodlots on the farms visited in 1945 was not obtained. A Nation-wide forest survey made 10 years earlier indicated that forest and woods areas in Carlton County were growing an average of only one-fifth cord per acre annually. Wide variation existed. Some stands were actually deteriorating more than enough to offset annual growth whereas others were growing at more than one cord a year.

Most of the 100 farmers interviewed in 1945 felt that the available timber was not worth the effort involved in cutting it. Some did harvest a few cords of pulp in connection with clearing pastures. If the younger men had been at home, there might have been somewhat more clearing of tracts. The timber from these would have gone for pulp.

Experience elsewhere has indicated that dairying and woods work seldom fit well together, unless there are two or more men on the farm. One man's time is mostly taken up by chores connected with the dairy herd. Then, too, returns from woods work are not large and there is a natural reluctance to get out into the winter cold and snow for work in the timber, especially when dairy work is bringing more favorable incomes than usual.

Income from Non-Farm Sources

In 1945, non-farm income was less important on full-time farms. Likewise, farm income was less important on part-time and resident farms than in 1940. In 1940 public relief (WPA, CCC, and direct relief) was received by six families, and old-age assistance by eight families. There were no public assistance programs in 1945, but 10 families were on old-age assistance. Five of these same families had also received assistance in 1940.

Only four of the full-time farmers reported appreciable income from work off their farms in 1945. The remainder made a few extra dollars driving a school bus, doing custom work, being a township officer, being a AAA committee-man, or as a highway worker. The average full-time farm family received only \$156 of non-farm income (table 10).

Off-farm employment of part-time farm families more than doubled during the 5 years and accounted for 93 percent of all their non-farm income. This, coupled with their increased farm income, provided a fair living. The remaining 7 percent of non-farm income came from pensions, old-age assistance, aid to dependent children, and from relatives in the Armed Forces.

Part-time farms occupy the operator for only a part of the year or a part of each week day. In 1940, some farms occupied by families receiving public assistance were classified as part-time farms. In 1945, the need for public assistance had mostly disappeared and, with the rise in employment opportunities, several part-time farm families had reduced their farming and become rural residents. In other cases the operators were working full-time in industry and the family was carrying on the farm work.

Residence farms in Carlton County are of two types. One has an operating head who has major non-farm employment. The other has an elderly head who can no longer do a man's work; he may have savings, or farm on a subsistence scale,

Table 10.- Non-farm cash receipts on 100 Carlton County farms,
1940 and 1945

Source of receipt	All farms		Resident farms		Part-time farms		Full-time farms	
	1940	1945	1940	1945	1940	1945	1940	1945
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
Labor off farm:								
Operator								
Private.....	207	386	178	535	435	795	94	100
WPA.....	7	---	---	---	18	---	3	---
Family								
Private.....	15	31	13	---	---	108	24	---
WPA.....	9	---	27	---	5	---	4	---
Pensions.....	4	2	20	---	---	8	---	---
Boarders	6	1	---	---	---	---	12	2
Direct relief.....	1	---	3	---	---	---	1	---
Old age assistance....	25	43	70	188	21	13	8	---
Aid dependent children:	6	6	---	---	21	21	---	---
Armed Forces.....	---	39	---	128	---	27	---	9
Other.....	1	30	---	34	3	---	---	45
Total.....	281	538	311	885	503	972	146	156

or he may be dependent upon public or private aid. In the rural-resident category of table 10 these two major sources are plainly indicated as being \$535 of income from off-farm employment and \$316 of public or private assistance per family.

Total Farm-Family Income

Although the importance of farm sources of income did not change between 1940 and 1945 for the average family, there was wide variation between groups (table 11). Operators of farms with less than 20 crop acres received more than half of their net incomes from farming in 1940, but by 1945 agriculture contributed only one-fourth of the total.

Farm sources of income increased in importance on medium-sized farms mainly through increases in prices received per unit of product sold. The importance of farm sources remained the same on large farms. The average value of farm produce used in the home was somewhat greater in 1945 than in 1940 for each size of farm. However, the relative importance of this source of family living decreased as cash farm income and non-farm income became greater.

Average incomes of the 100 families doubled between 1940 and 1945 (table 12). The average rural resident family, however, received only 57 percent more than in 1940. Of the 21 rural-resident families, 10 actually received less cash income than they did in 1940 and 4 others received relatively little more. These

Table 11.- Sources of total farm family income on 100 Carlton County farms, classified by size of farm, 1940 and 1945

Source	All farms		Size of farm 1/					
			Small		Medium		Large	
	1940	1945	1940	1945	1940	1945	1940	1945
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Net cash farm income:	532	1,233	224	179	213	685	860	1,979
Farm produce used:	177	218	145	157	128	171	222	272
Net farm income:	709	1,451	369	336	341	856	1,082	2,251
Non-farm income:	281	538	326	832	428	726	163	305
Total family income:	990	1,989	695	1,168	769	1,582	1,245	2,556
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Net cash farm income:	54	62	32	15	27	43	69	77
Farm produce used....:	18	11	21	13	17	11	18	11
Net farm income.....:	72	73	53	28	44	54	87	88
Non-farm income	28	27	47	72	56	46	13	12
Total family income:	100	100	100	100	100	100	100	100

1/ Size groups are the same as used in table 3.

are mainly families of elderly folks who are dependent upon savings, subsistence production, or public and private assistance.

Table 12.- Sources of total farm family income on 100 Carlton County farms, classified by kind of farm, 1940 and 1945

Source	All farms		Full-time farms		Part-time farms		Residence	
	1940	1945	1940	1945	1940	1945	1940	1945
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Net cash farm income:	532	1,233	808	2,171	222	480	277	185
Farm produce used....:	177	218	209	281	154	223	131	59
Net farm income.....:	709	1,451	1,017	2,452	376	703	408	244
Non-farm income	281	538	146	156	503	972	311	885
Total family income:	990	1,989	1,163	2,608	879	1,675	719	1,129

The average part-time farm family received 90 percent more income than in 1940. Farm and non-farm proportions of the total were in the same ratio of slightly more than 40 percent from the farm and slightly less than 60 percent from non-farm sources in both years.

Non-farm sources of income accounted for 13 percent of total income on full-time farms in 1940, but dropped to 6 percent in 1945. Income from non-farm sources changed much less than that from farm sources for this group.

Income and Purchasing Power per Person

Of the 100 families, only 22 had increased in numbers of persons per household while 49 had decreased in size, over the 5-year period. The average number of persons per household declined from 3.9 in 1940 to 3.3 in 1945 (table 13). This reduction in size of family occurred in all groups regardless of size of farm, although it was most pronounced in families having over 40 acres of cropland. These households were reduced from an average of 4.5 persons per family to 3.7; those on middle-sized farms were reduced from 3.4 to 3.0; and those on small farms from 3.2 to 2.8 members.

On the basis of the numbers of persons to be fed and clothed from the income, these families were all much better off than they were in 1940. Where in 1940 the average individual had a pro-rata share of \$254 of family income, he had \$603 in 1945. This was 2.4 times the income available in 1940 but actually would not buy 2.4 times as much goods as the cost of many things persons buy also had risen during the period. The individual's actual purchasing power, when related to changes in cost of living indexes, was 165 percent of what it had been in 1940.

Because the income and members per household on small farms changed less proportionately, their purchasing power per person also changed less than for persons living on larger farms in the region, but even they had one-third more purchasing power than in 1940. The average person living on a middle-sized farm of from 20 to 40 acres experienced an increase in purchasing power of 62 percent, while one living on a larger farm had an increase of 73 percent.

These are appreciable increases for any group to experience within a 5-year period, and are important in attracting people to this region as a place to live. The younger family heads are apprehensive about the future. They realize that other areas may be able to take away the present good market for their produce through lower costs of production and marketing. Several co-operative groups and individuals are working on a "quality" program which they hope will enable them to provide high-quality milk and in that way meet competition from other areas.

Income Changes on an Average-Size Farm

Changes in farming and farm incomes which have occurred in the region are indicated in the following example. This is an average case, representing a full-time farm, and reflects the shifts that have occurred in crop and live-stock production as a result of the altered price situation. No attempt has been made to adjust production per acre or per animal, except for potatoes, over the 5-year period. Production per cow probably has risen somewhat, but in any case the rise would be small and would increase the net returns very little.

Table 13.- Estimated change between 1940 and 1945 in purchasing power per person on farms,
by size of farm, 100 Carlton County farms.

Size of farm	Number in farm	Average family income		Persons per household		Income per person		Index of commodity prices 1/		Purchasing power per person 2/		Increase in purchasing power
		1940	1945	1940	1945	1940	1945	1940	1945	1940	1945	
		Dollars		Number		Dollars		Dollars		Dollars		Percent
Small ..	17	695	1,168	3.2	2.8	217	417			174	232	33
Medium ..	34	769	1,582	3.4	3.0	226	527			181	293	62
Large ...	49	1,245	2,556	4.5	3.7	277	691			222	384	73
Average :	100	990	1,989	3.9	3.3	254	603	125	180	203	335	65

1/ 1910-14 = 100, estimated from BAE

2/ Income per person divided by index of commodity prices for each year.

In 1940 the average full-time farm had about 35 acres of cropland of which 26 was in hay, 7 in small grains, and 2 in potatoes (or cabbages and rutabagas) (table 14). It ran about 10 cows, 7 young stock, a couple pigs, and enough hens to provide eggs for the family. Most of the income came from butterfat sold as cream. Cull cows, veals, a few eggs, and a few bushels of potatoes or tons of cabbage accounted for the remaining farm income.

The feed bill was the largest single item of expense and amounted to nearly half of the total cash expenses. Fixed expenses such as taxes, insurance, interest and building repairs amounted to about half of the remaining expenses.

Net cash farm income of \$434 was low, but since family living expenses were generally low, the family was able to live fairly well. Use of farm products worth \$170 in the home helped appreciably in stretching the cash income.

By 1945 about 5 acres of cropland had been added to the average full-time farm (table 15). Bad weather and disease had reduced the acreage of potatoes; weather, labor shortages, and other causes had reduced small grains by nearly half; but the acreage of hay land had been increased from about 26 to 35 acres.

Livestock numbers on middle-sized farms changed little during this period. Thus the major causes for changes in income could be in only crops and in prices received for produce. Income from crop sales decreased and the bushels of grain available for feed decreased. Tonnage of hay increased and livestock undoubtedly were better fed since they could pick over their roughage and discard more of it.

The greatest single change in the picture was the shift from selling cream to selling fluid milk. This involves a change from dairy products worth about \$1.20 per hundredweight of milk at 1940 prices to about \$3.50 per cwt. at 1945 prices including the subsidy. Thus, where 10 cows in 1940 had produced butterfat worth \$528, the same total production of milk brought \$1,645 in 1945.

The 1945 feed bill of \$320 was more than double that of 1940 and was still the largest single item of expense. Crop expenses had been reduced because a smaller acreage of cultivated crops was planted. Other expenses had risen, but not so rapidly as the prices the farmers received. Slightly fewer farm products were used in the homes but their value was higher than in 1940. Consequently, net income from farming was more than twice as great on these farms as it was in 1940.

It is very evident from these data that families depending upon this type of farming are confronted by unusual hazards to a high level of income. They stand to be caught both by generally lower prices for dairy products and by the loss of war-created outlets for whole milk.

OLD OPERATORS REPLACED BY YOUNGER MEN

Predominantly young, physically fit families live in new or young communities. By the end of 20 or 30 years there are signs that indicate whether the area is productive and is able to meet competition from other areas. In eastern United States there are large areas which were settled by one generation, farmed by the second, and abandoned by the third. The third generation found that they could make a better living more easily in some other location or occupation. Areas in other regions are having the same experience.

Of the 129 families visited in Carlton County in 1940, 27 had moved to other locations or the family had disintegrated by 1945. One of the 27 places was left vacant, but new families had taken over the other 26 farms. These 26 "new" families may be compared in some respects with each other and with the 100 families who had remained on the same places throughout the 5-year period.

In 1940, the average age of the 26 operators who are no longer in the area was 53 years; 4 out of 10 were past 60 years of age; and only 1 in 10 was under 30. In 1945, the average age of 26 farmers who had come into the region during the preceding 5 years had dropped to 42 years. Only 1 in 20 was more than 60 years old and 2 in 10 were under 30. There probably would have been a higher proportion of young farmers if they had not been in the Armed Forces or away in industry.

Operators on the smaller units were depending less in 1945 upon farming and more upon other sources of income than had the previous operators, but their acreage of cropland and total land was slightly higher. Operators of middle-sized and large farms had much larger farm incomes than had their predecessors, due primarily to the rise in prices of farm produce. Their non-farm earnings were more than three times as large and they had considerably more land.

When the 26 "new" operators are compared with the 100 who had stayed on the same places, the effect of being less well established is demonstrated. As they were less tied-down and were younger, these 26 men took more advantage of the chances to earn wages at non-farm occupations. At the same time, they were building up a farm which they hoped would support them if or when they lost their jobs.

Two types of examples illustrate typical cases among the farm families. In one instance, the new family was operating with practically the same livestock as the previous family. But where the previous operator had depended on the farm for all of his income, the present one worked in industry during the winter. His family helped with the necessary farm work. He has bought additional land, cleared some, and plans to clear more.

The other type of change is represented by a full-time farmer who bought out an aged operator. From 4 cows and 4 young stock, and 50 hens, the herd was increased to 15 cows, 6 young stock, and 100 hens (although the hens were sold in the fall of 1945 because they did not pay). This young farmer had added an adjoining "40" and was dealing for another nearby which would increase his acreage of fields and pastures.

Both of these men were thinking about postwar conditions and trying to be in an economically sound position when or if reverses set in.

A large proportion of full-time farmer parents with sons or sons-in-law in the Armed Forces expected them to return to Carlton County and take over the home farms. A few had already been released from the services and had returned to the community, but only one had settled down and begun to farm as though he meant to stay. The others were as yet undecided about their future plans.

From experience of parents in other areas, it is probable that many aged couples, who have "kept the farm going" for a son, will find that the son does not want it, if he can get what he considers a good job in some other occupation. But these disappointments to some families do not preclude the return of many local men to the area nor the settlement of outsiders in the area.

POSTWAR FARMING PROSPECTS IN CARLTON COUNTY

Farming in the cut-over region before the war was not easy. Many jobs were accomplished by much hand labor. Farm machinery was not plentiful and often was in poor repair. Incomes of farm families on small tracts of land were very meager and often families on larger units were not far above a subsistence level of living. The outlook was gloomy for many families. But throughout the region some farm families could be found that, through good fortune or skill in organizing resources and operations, were making rather comfortable livings. Some of these families combined outside work with farming to good advantage.

Incomes of farm families of the cut-over region increased materially during World War II. Some families left their farms for work in war-created or war-stimulated industries. But by far the larger number of families remained on their farms where some expanded their production, some worked more away from their farms for high wages, but where all were able to sell farm products at greatly improved prices.

Farm families visited in the county in 1945, as previously discussed, had family incomes at that time which were about double, on the average, those they had in 1940. Much of this improvement came about by marketing milk as whole milk or for use in cheese rather than use for cream or butter. It was a case of diverting milk to uses of higher value. At the same time dairying was expanded appreciably.

Improved financial conditions brought about changes in size of farms and use of farm land. Elderly couples and families with good chances to work off their farms were likely to dispose of or abandon their farm land. Families who were depending upon farming as a permanent source of income generally were interested in improving their farms by adding more cropland. There was indication that full- and part-time farmers were increasing their land resources in an effort to be better prepared to withstand either the loss of favorable markets for their dairy products or a situation of generally low prices for farm products.

If national purchasing power remains high and markets for dairy products remain strong, farmers in Carlton County and similar areas may be able to expand their production until the average farm unit provides an income that will furnish a comfortable living. If national purchasing power should decline, farm families in this county, like other farm people, will have reduced earnings. Many of the families, however, would be better able to absorb the loss of income than would families in more prosperous farming areas. They could do this because of the lower fixed expenses associated with their kind of farming.

Dairy farmers of the county realize that wartime demand for milk and milk products allowed them to sell increased quantities of milk-solids-not-fat where formerly these had been wasted or fed to livestock. Through their co-operatives and other organizations they have started an active program to improve the quality of the milk in an effort to hold their gains. With a reasonably good market for milk and with feed prices at a reasonable level, they probably can boost production per cow at least 10 percent within a few years.

On some farms the new buildings and general reorganization necessary to meet the sanitary requirements of some milk markets would be economically impossible. On others, minor physical changes would suffice, but the ways of operating would have to be improved.

It is possible that elderly dairymen, or owners of small herds, who could not afford the necessary investment in remodeling old buildings or constructing new ones could make an adequate income by raising replacement stock. If this type of enterprise were to become common, however, some sort of marketing program to bring additional buyers into the area would have to be developed. Artificial insemination programs and use of proved sires should be of substantial benefit to such an enterprise.

Poultry, hog, and sheep production probably will remain as minor enterprises on most of the farms.

A few farmers have made appreciable incomes from potatoes or cabbage as supplementary crops. There has usually been adequate labor within the family, or nearby, to do all the work. But acreages of soils that are adapted to these crops are limited. It has been observed, too, that it is necessary to have enough acreage to warrant a complete line of equipment. Farmers with small acreages of potatoes or cabbage often are not adequately prepared to combat disease and other pests or tend to be careless and so often lose their entire crop. Potato growing in the county has declined appreciably since 1940 because of the wet seasons and the prevalence of potato blight. Some farmers, growing 2 or 3 acres, failed to recover the amount of their seed. Return of dry years will reduce the damage from blight, but cannot reduce the disadvantage of insufficient equipment for the small farmer.

Unless prices of potatoes and cabbage are low during several years, families who are located on these adapted soils and have the necessary equipment will probably find these crops profitable.

For those folks outside who are thinking of going to the cut-over region to settle, a few closing suggestions may be offered. The future does not look bright for settlement for a family who has little capital and plans to clear land and get its main support from farming. If a family has enough capital to take over an existing farm, either through buying or renting, it probably could get a very modest living. Hard work and careful planning would be necessary for success and the family could not expect to have many of the conveniences used around the farms and homes of farmers who live in better agricultural areas. Persons who have outside sources of income, or those who want relative isolation or who want to be near recreational opportunities, might find an area such as Carlton County a satisfactory and interesting place to live.

